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# ON-SITE VISIT BRIEFING BOOK FOR COMMISSIONER MERRIFIELD

SHIELDALLOY METALLURGICAL CORPORATION  
NEWFIELD, NEW JERSEY

February 20, 2007



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**Agenda for Commissioner Merrifield's Visit to  
Shieldalloy Metallurgical Corporation (SMC)**

- |            |  |
|------------|--|
| 10:00 a.m. | Arrive at SMC Site, Introductions  |
| 10:10 a.m. | Presentation by SMC Representative<br>Site Overview, History, and Current Status |
| 10:45 a.m. | Walking Tour of Site   |
| 12:00 noon | Conclusion and Discussion  |
| 12:30 p.m. | Commissioner Directed Activities   |

Key Messages

The NRC's License Termination Rule (10 CFR Part 20 Subpart E) allows for license termination following decommissioning under restricted use decommissioning. As a followup to the staff's License Termination Rule Analysis in SECY-03-0069, the Commission approved the Long Term Control (LTC) license option as an NRC legally enforceable and durable institutional control.

The NRC staff will be conducting its detailed technical review of SMC's Decommissioning Plan (DP) in accordance with our regulations and guidance. A Decommissioning Information Public Meeting was held on December 5, 2006, and an Environmental Impact Statement (EIS) Scoping Meeting was held on December 12, 2006, to engage the stakeholders in our review process. In addition, the NRC staff will keep the stakeholders informed of its review activities through open-to-the-public meetings with SMC, press releases, our web site and a repository of documents related to this action at the public library in Newfield, New Jersey.

An opportunity to Request a Hearing on the Shieldalloy Decommissioning Plan was published in the Federal Register on November 16, 2006. Seven requests for a hearing were filed by the January 16, 2007, due date. Hearing Requests were received from:

- New Jersey Department of Environmental Protection
- Loretta Williams
- Gloucester County New Jersey Board of Chosen Freeholders
- State Senator Madden, Assemblymen Moriarity and Mayer
- Terry Ragone
- Cumberland County, New Jersey
- Borough of Newfield, New Jersey

Facility Location Map and Directions

Location Map for Shieldalloy Metallurgical Corporation



Directions to Facility

From: 11545 Rockville Pike Rockville, MD 20852-2746 US  
To: 12 S West Blvd Newfield, NJ 08344-9558 US

Driving Directions

1. Start out going NORTH on ROCKVILLE PIKE/MD-355 N toward MARINELLI RD. (0.12 miles)
2. Make a U-TURN at MARINELLI RD onto ROCKVILLE PIKE/MD-355 S. (2.09 miles)
3. Merge onto I-495 E/CAPITAL BELTWAY via the ramp on the LEFT toward BALTIMORE/SILVER SPRING. (8.39 miles)
4. Merge onto I-95 N via EXIT 27 toward BALTIMORE/NEW YORK (Portions toll) (Crossing into DELAWARE). (94.05 miles)
5. Merge onto I-295 N toward NEW JERSEY TURNPIKE/DEL MEM BR/NJ-NY (Crossing into NEW JERSEY). (6.46 miles)
6. I-295 N becomes US-40 E/NEW JERSEY TURNPIKE N (Portions toll). (0.89 miles)
7. Take the exit toward ATLANTIC CITY. (0.17 miles)
8. Turn SLIGHT LEFT to take the US-40 E ramp toward ATLANTIC CITY. (0.06 miles)
9. ramp becomes US-40 E. (8.14 miles)
10. Turn LEFT onto US-40/NJ-45/NJ-48/WEST AVE. Continue to follow US-40. Pass through 1 roundabout. (16.70 miles)
11. Stay STRAIGHT to go onto WEST BLVD/CR-615. Continue to follow CR-615. (2.45 miles)
12. End at 12 S West Blvd Newfield, NJ 08344-9558 US

Total Estimated Time: 2 hours, 37 minutes  
Total Distance: 139.51 miles

Site contact if additional information needed:

Dave Smith  
(856) 362-8680, office  
[(b)(6)] cell phone

EX-6

Directions from Facility to NRC

From: 12 S West Blvd Newfield, NJ 08344-9558 US  
To: 11545 Rockville Pike Rockville, MD 20852-2746 US

Driving Directions

1. Start out going NORTHWEST on CR-615 toward COLUMBIA AVE. (2.54 miles)
2. Stay STRAIGHT to go onto HARDING HWY/US-40. Continue to follow US-40. Pass through 1 roundabout. (16.61 miles)
3. Turn RIGHT onto US-40 W/NJ-48 W/HARDING HWY. Continue to follow US-40 W. (8.18 miles)
4. Turn SLIGHT RIGHT onto HAWKS BRIDGE RD/NJ-140. (0.12 miles)
5. Merge onto US-40 W toward DEL MEM BR (Portions toll) (Crossing into DELAWARE). (5.08 miles)
6. Take I-295 S toward I-95/WILMINGTON/I-495/DEL TPKE-BALT. (1.23 miles)
7. Merge onto I-95 S via the exit on the LEFT toward BALTIMORE (Portions toll) (Crossing into MARYLAND). (93.90 miles)
8. Merge onto I-495 W/CAPITAL BELTWAY via EXIT 27 toward SILVER SPRING. (9.66 miles)
9. Merge onto ROCKVILLE PIKE/MD-355 N via EXIT 34 toward ROCKVILLE/BETHESDA. (2.16 miles)
10. End at 11545 Rockville Pike Rockville, MD 20852-2746 US

Total Estimated Time: 2 hours, 34 minutes

Total Distance: 139.47 miles

Facility Data

Licensee Name: Shieldalloy Metallurgical Corporation

NRC License Number: SMB-743

NRC Docket Number: 040-07102

Site Location: Newfield, New Jersey

NRC Project Manager: Ken Kalman 301-415-6664

Licensed Activities: The Shieldalloy Metallurgical Corporations (SMC) facility processed pyrochlore, a concentrated ore containing columbium (niobium), to produce ferrocolumbium, an additive/conditioner used in the production of speciality steel and super alloy additives. Pyrochlore contains more than 0.05 percent by weight thorium and uranium and is therefore regulated as source material. SMC was licensed by the NRC to ship, receive, possess, use and store source material under SMB-743. The maximum amount that SMC can possess at one time is 303,050 kilograms of thorium and 45,000 kilograms of uranium.

Effluent/exposure data

In 1992, a walkover survey indicated elevated gamma exposure rates of up to 175 microR per hour at one meter above the surface at the perimeter fence.

A 1997 inspection report (Inspection Report No. 040-07102/97-001) indicated that the highest quarterly thermoluminescent dosimetry result was 511 millirem (mrem) at the licensee's boundary. The licensee performed an assessment of the potential dose to a member of the public and determined that the maximum exposure would be approximately 4.2 mrem per quarter. The licensee assumed that a member of the public would spend a maximum of one hour per month at the location of the highest exposure. The licensee based this assumption on the fact that the area is not easily accessed due to surrounding vegetation.

Decommissioning Plan Status

By letter dated October 18, 2006, NRC staff accepted the DP for detailed technical review. The staff is currently working on the technical review and held a Decommissioning Information Public Meeting on December 5, 2006, and an EIS Scoping Meeting on December 12, 2006, both in Newfield, New Jersey.



Facility Unique Features

Administration Facilities and Manufacturing Area

This area is located on the western side of the 67 acre site and is comprised of parking lots, administrative offices and manufacturing buildings. For most part, the area is covered with asphalt or concrete pavement. Most of the Newfield site was not impacted by licensed operations, although the extent of impact is included in the issues raised in pending hearing requests on the LTC amendment. Buildings that were impacted have been remediated as necessary, subjected to final status surveys, and released for unrestricted use. These buildings include the A-Warehouse; G-Warehouse; AAF Baghouse (with exception of the concrete pad); and the Ferrovandium slag sorting area in the Storage Yard.

Storage Yard

The storage yard is in the eastern portion of the site and is used to store materials that were generated during manufacturing operations such as slag, baghouse dust, excavated soils and other similar materials. The contaminated slag pile is a prominent feature of the site. Currently, there is approximately 18,000 m<sup>3</sup> (635,580 ft<sup>3</sup>) of slag and approximately 15,000 m<sup>3</sup> (529,650 ft<sup>3</sup>) of baghouse dust contaminated with natural uranium, thorium, and daughters stored on-site.

Undeveloped Plant Property

Undeveloped plant property is situated along the southern border of the site. SMC also owns a 19.8 acre non-contiguous plot that is located southwest of the site and was not used for NRC-licensed activities.

**Facility Oversight Process Info**

NRC inspections of the site in 2003, 2004, and 2005 did not identify any violations (Inspection Report 04007102/2003001). Groundwater samples taken in 2004 were analyzed for gross alpha and gross beta by the Oak Ridge Institute for Science and Education and found to be less than the U.S. Environmental Protection Agency screening limits for groundwater.

Licensee Strengths

No license violations have been identified in the past few NRC inspections.

SMC staff and contractors have been responsive to direct requests from NRC staff.

Areas Needing Improvement

Public Involvement - Pursuant to 10 CFR 20.1403, the licensee was required to seek advice from affected parties, as part of the development of the DP. The licensee established a site specific advisory board (SSAB) to meet this requirement and held several public meetings. However, the NRC staff received several negative comments from affected parties that SMC excluded certain parties from participation on the SSAB, and that the licensee's public meetings had not been adequately noticed. The NRC staff conveyed these comments back to the licensee as they were received so they could be factored into future interactions.

Following Guidance - SMC submitted its first DP in August 2002. The NRC staff rejected the DP in February 2003 because it was deficient in providing information needed for the staff to conduct its detailed technical review. After rejecting the DP, the NRC staff provided SMC with specific guidance in May 2004 on the use of the possession only license for long term control to better enable SMC to submit a DP that would be acceptable for detailed technical review. NRC staff also held several interactions with SMC to ensure SMC's understanding of the guidance. Nevertheless, SMC's revised DP which was submitted in October 2005 was rejected in January 2006 because of deficiencies. SMC submitted a supplement to the revised DP in June 2006 to correct the deficiencies. In October 2006, the revised DP, as supplemented, was accepted by the NRC staff for detailed technical review.

Current Issues

License Amendment Request for Long Term Control License

In developing its DP, SMC considered several options for decommissioning its site:

- License Continuation
- Offsite Disposal and License Termination
- Onsite Stabilization and LTC

After conducting a cost/benefit analysis, SMC proposed the use of onsite stabilization and long term control. This plan would leave the radioactive slag onsite with an engineered cover and land use restrictions under the NRC's possession-only LTC license. The DP proposal with respect to use of an LTC is contested by multiple parties who have requested a hearing and, if a hearing is granted, the issues will include whether an LTC meets the License Termination Rule requirements for restricted use, using legally enforceable and durable institutional controls and an independent third party.

SMC performed a radiation dose analysis for both the unrestricted and restricted use portion of the site. The licensee evaluated scenarios for restrictions remaining in place and the condition where the institutional controls fail. The proposed DP estimates the peak mean dose to the critical exposure groups in ten scenarios, as shown below (**estimates by the Licensee have not been reviewed by NRC staff**).

Scenario	Area	Status of institutional control	Estimated dose (mrem/year)
Trespasser	Unrestricted	In place	1
Suburban Resident	Unrestricted	Fail	1
Maintenance Worker	Restricted	In place	1
Industrial Worker	Restricted	In place	20.8
Trespasser	Restricted	In place	1
Recreational Hunter	Restricted	Fail	13.6
Industrial Worker	Restricted	Fail	1
Slag Excavator	Restricted	Fail	8.3
Suburban Resident	Restricted/Excavated	Fail	17
Recreational Hunter	Restricted/Excavated	Fail	13.7

Public Involvement in the NRC's Decommissioning Plan Review Process

As evidenced by letters to the NRC from New Jersey Department of Environmental Protection, elected officials and local stakeholders, and media coverage, there is considerable interest in the SMC site. Consequently, as part of its DP review process, the NRC staff held a public meeting on the review process in Newfield, New Jersey on December 5, 2006. Because SMC proposes restricted use of the site following decommissioning, as part of the DP review process, the NRC staff is developing an EIS instead of an Environmental Assessment. As part of the EIS process, the NRC staff met with local officials to inform them of the EIS process and held a public EIS Scoping Meeting on December 12, 2006.

New Jersey's Intent to become an Agreement State

By letter of May 23, 2006, Governor Corzine expressed New Jersey's intent to become an Agreement State. In a letter dated December 23, 2006, from New Jersey Commissioner Jackson to NRC Chairman Klein, the State anticipates submitting a draft application in August 2007 with the goal of having the Agreement signed by August 2009. At that time, the NRC would relinquish its authority over the SMC site to New Jersey and New Jersey could impose equivalent or more stringent requirements for SMC.

State and Congressional Interest

Governor Corzine, Senator Menendez, Senator Lautenberg, Representative LoBiondo, State Senator Madden, State Representative Mayer, and State Representative Moriarity have expressed concerns with the use of NRC's Long-Term Control (LTC) license for the SMC site. Their stated concerns are: 1) the proposed approach would create an unlicensed low-level radioactive waste disposal facility; 2) that there has not been a meaningful opportunity for community discussion; and 3) the radioactive material should be disposed of and not left for future generations. NRC staff has acknowledged these concerns, but explained that NRC would continue the decommissioning process, including the review of Shieldalloy's DP with the proposed LTC license to implement the restricted use option.

Financial Assurance

When the site was originally licensed by the Atomic Energy Commission, SMC was not required to provide financial assurance for decommissioning. The licensee estimates that offsite disposal would cost \$63 million and contends that the cost associated with offsite disposal would force the company into bankruptcy. In contrast, the licensee estimates that the cost associated with its proposal to leave the material on site would be more manageable (approximately \$8 million including \$5 million held in trust to pay for long-term maintenance and control). The current financial assurance is not adequate to cover these costs but SMC plans to increase the amount to cover its cost estimate. Local stakeholders have raised concerns that SMC's proposed alternative is based on financial convenience as opposed to the best interest of the public.

Local Media Interest

There has been considerable ongoing media interest in the decommissioning process at the site.

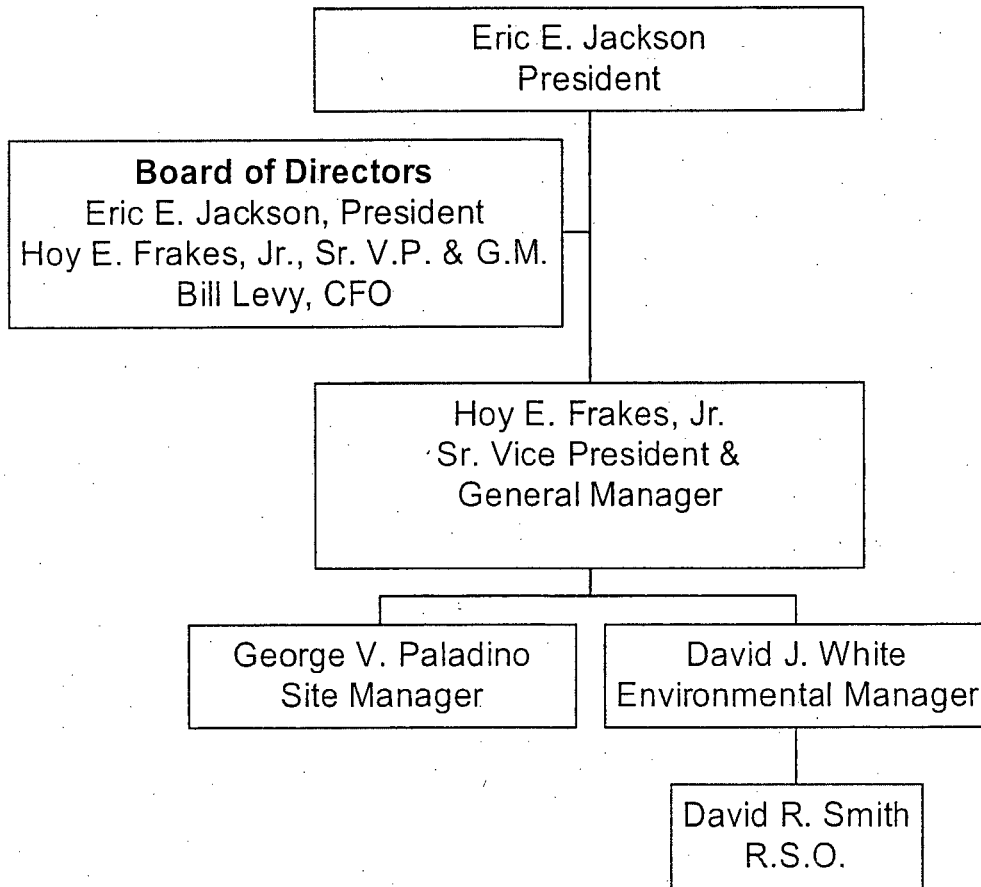
NRC Inspection

Region I has a current open, ongoing inspection of the facility.

Recent NRC Commissioner Visit

Commissioner Jaczko visited the Shieldalloy site on November 17, 2006, and separately met with local officials and representatives from the New Jersey Department of Environmental Protection.

**Facility Organization**



**Biographical Data of Principal Managers**

DAVID R. SMITH  
Radiation Safety Officer and Authorized User for SMC

**Education**

B.S. (Civil Engineering), Villanova University, [(b)(6)]  
Hazardous Waste Operations and Emergency Response Training (29 CFR 1910.120),  
Naval Facilities Engineering Command, 1986.  
Hazardous/Toxic Waste Management, Lion Technology  
SMC General Employee Training and Employee Right to Know Training  
Radiation Safety Training for Authorized Users of Radioactive Materials, IEM, 1994.  
Managing Radiation Protection Programs, IEM, 1996

**Registrations/Certifications**

New Jersey Department of Environmental Protection, Class N2 Industrial Wastewater  
Treatment System Operator License

**Experience and Background**

**2006-Present** - TRC - Has the overall site management responsibilities and on site direction of work beginning conducted as part of the Newfield Exit Strategy Project. In addition to the Exit Strategy Project responsibilities, continued support and execution of Shieldalloy Metallurgical Corporation's Newfield New Jersey Radiation Safety Program as the Radiation Safety Officer (RSO) and the USNRC Decommissioning project. Management of the groundwater investigation of the potential perchlorate contamination resulting from past metallurgical operations.

**1988-2006** - Shieldalloy Metallurgical Corporation - Has been responsible for overall management and direction of the company's environmental remedial investigations related to past operating practices, as well as its environmental management of current operations to assure compliance with appropriate local, state and Federal laws and regulations. Managed the Newfield NJ RI/FS and RCRA Lagoon closure programs. Supervise and manage the groundwater remediation program, participated in radiological characterization including pressurized ion chamber measurements, gamma scintillation survey and surface soil sample collection at SMC Newfield. Has been a member of the Radiation Safety Committee, supervised and assisted with the management of the TLD program, performed bioassay sampling and air sampling to demonstrate license and regulatory compliance. Has conducted sampling for analysis to update source material inventory. Has been responsible for radiological decontamination efforts performed at the SMC Cambridge facility which excavated and consolidated the mislocated slags from the 16 areas identified by ORAU and development of documents for submission to NRC for the Decontamination and Decommissioning Reports of 1991. Responsible for the SMC coordination of EA/EIS efforts which NRC has been conducting at the Newfield facility as part of the license renewal and evaluation of the decommissioning options available to the company.

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Responsible for conducting environmental due diligence investigations associated with planned acquisition of property and companies.

**1974-1988** - Naval Facilities Engineering Command - As a senior environmental manager was responsible for the management of CERCLA Site Assessments, Remedial Investigation/Feasibility Studies, RCRA Remedial Investigations and UST closures, development and auditing of NPDES programs; air pollution control program, and at various Naval shore facilities within the 24 state region. These programs were implemented and provided to the Commanding Officers of the following major naval shore facilities: NWS Earle, NJ; NAS Glenview, IL; NSB Groton, CT; NUSC London, CT; NTC Great Lakes, IL; NAEC Lakehurst, NJ; NSGA Winter Harbor, ME; NCU Cutler, ME; NWSC Crane, IN; NAPC Trenton, NJ; NCBC Davisville, RI; and NETC Newport, RI. Responsibilities included coordination with local, state and Federal agencies. Radiological concerns were addressed at several sites, particularly related to groundwater and soil contamination.

**1972-1974** - United States Army Environmental Hygiene Agency - Assisted with the planning, management and accomplishment of baseline environmental surveys of US Army munition depots and manufacturing plants. The surveys established the basis for the US Army for applying for their first round of National Pollutant Discharge Elimination System (NPDES) permits. The surveys established sampling points/locations at the depots and munition manufacturing facilities for the collection and characterization of industrial wastewater domestic sewer, and storm water discharges. These sampling locations were sampling over a two to four week period for a comprehensive list of analytes including BOD, COD, bacterial (fecal), chemical composition, metal and organics. The results were compiled into a report submitted to the Commanding Officer of the facility with recommendations for treatment, monitoring, etc.

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Local Officials

Steven M. Sweeney, Freeholder Director  
Gloucester County Board of Chosen Freeholders  
P.O. Box 337 Court House  
Woodbury, NJ 08096  
(856) 853-3275

Douglas M. Rainear, Freeholder Director  
Cumberland County Board of Chosen Freeholders  
790 E. Commerce Street  
Bridgeton, NJ 08302  
(856) 453-2138

Mayor Joseph J. Curcio, III  
Newfield Borough  
18 Catawba Avenue  
Newfield, NJ 08344  
(856) 697-1100

Kenneth C. Koschek  
New Jersey Department of Environmental Protection  
P.O. Box 418  
Trenton, NJ 08625-0418  
(609) 292-0418

Senator Fred H. Madden, Jr.  
New Jersey State Senate  
129 Johnson Road, Suite 1  
Turnersville, NJ 08012  
(856) 232-6700

Assemblyman David R. Mayer  
New Jersey State Assembly  
129 Johnson Road, Suite 1  
Turnersville, NJ 08012  
(856) 232-6700

Assemblyman Paul D. Moriarity  
New Jersey State Assembly  
129 Johnson Road, Suite 1  
Turnersville, NJ 08012  
(856) 232-6700